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IS/ISO 8640-1 (1990): Textile Machinery and Accessories - Flat Warp Knitting Machines - Vocabulary, Part 1: Driving Mechanisms, Supports and Knitting Elements [TXD 14: Machinery for Fabric Manufacture]

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वस्त्रादि मशीनरी एवं सहायकांग — फ्लैट ताना बुनाई की मशीनें — शब्दावली

भाग 1 चालन यन्त्रावली, आलम्बन एवं बुनाई अवयव

Indian Standard

TEXTILE MACHINERY AND ACCESSORIES — FLAT WARP KNITTING MACHINES — VOCABULARY

PART 1 DRIVING MECHANISMS, SUPPORTS AND KNITTING ELEMENTS

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Knitting Machinery Sectional Committee, TX 22

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 8640 - 1 : 1990 'Textile machinery and accessories — Flat warp knitting machines — Vocabulary — Part 1 : Driving mechanisms, supports and knitting elements', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Knitting Machinery Sectional Committee and approval of the Textile Division Council.

Only English language text in this International Standard has been retained while adopting it as Indian Standard.

In this Indian Standard, the following International Standards are referred to. Read in their respective place the following:

International Standard	*Indian Standard*	*Degree of Equivalence*
ISO 8119 - 1 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 1 : Latch-type needles	IS/ISO 8119-1 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology : Part 1 Latch-type needles	Identical
ISO 8119-2 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 2 : Bearded needles	IS/ISO 8119-2 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology : Part 2 Bearded needles	do
ISO 8119 - 3 : 1992 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 3 : Compound needles	IS/ISO 8119-3 : 1992 Textile machinery and accessories — Needles for knitting machines — Terminology : Part 3 Compound needles	do
ISO 8188 : 1986 Textile machinery and accessories — Pitches of knitting machine needles	IS 12414 : 1988 Pitches of knitting machine needles	Technically Equivalent

Indian Standard

TEXTILE MACHINERY AND ACCESSORIES — FLAT WARP KNITTING MACHINES — VOCABULARY

PART 1 DRIVING MECHANISMS, SUPPORTS AND KNITTING ELEMENTS

Scope

This part of ISO 8640 defines the basic terms specifically related to the technology of flat warp knitting machines. These terms are subdivided into the following areas:

1 Flat warp knitting machines
2 Sides and dimensions
3 Machine frames
4 Driving mechanisms for knitting elements
5 Supports for knitting elements ; bars
6 Knitting elements

The figures illustrate the working principles of the various combinations. They do not represent the only, or even the most common, arrangement.

Normative references

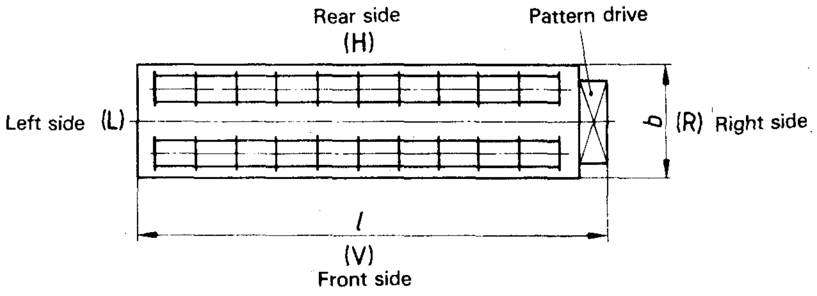
The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8640. At the time of publication, editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8640 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

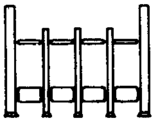
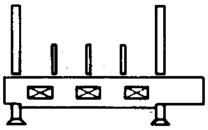
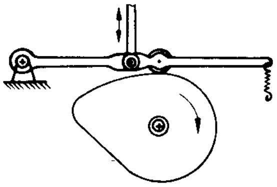
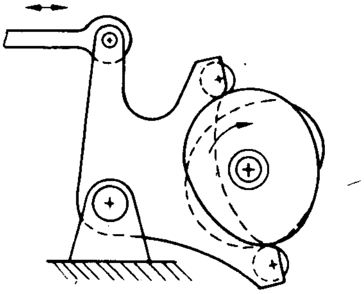
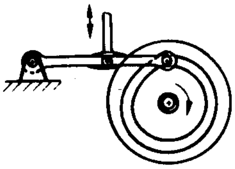
ISO 8119-1 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 1 : Latch-type needles

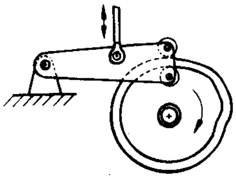
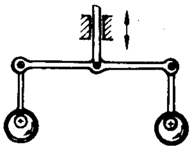
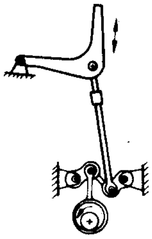
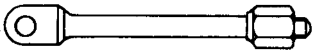
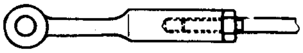
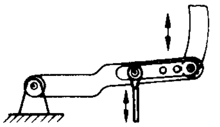
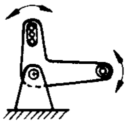
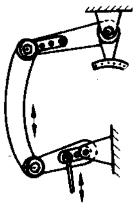
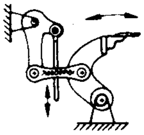
ISO 8119-2 : 1989 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 2 : Bearded needles

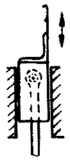
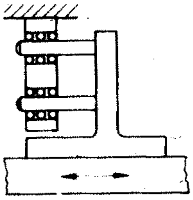
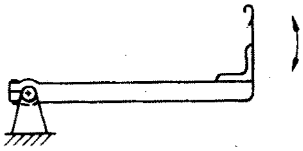
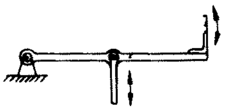
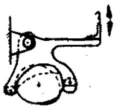
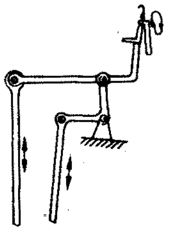
ISO 8119-3 : 1992 Textile machinery and accessories — Needles for knitting machines — Terminology — Part 3 : Compound needles

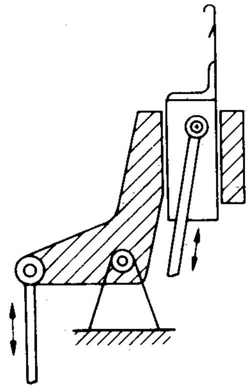
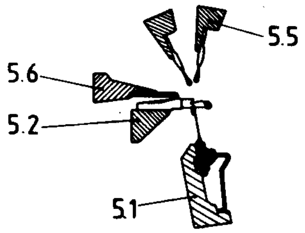
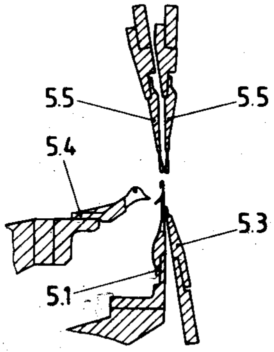
ISO 8188 : 1986 Textile machinery and accessories — Pitches of knitting machine needles

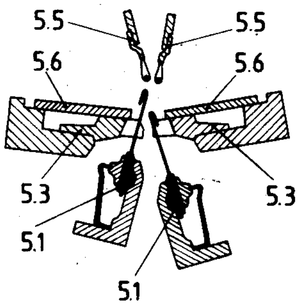
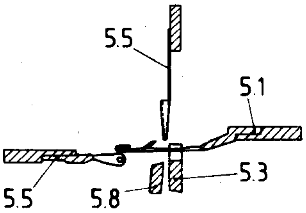
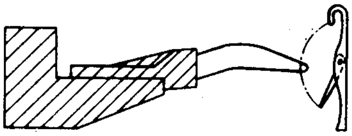
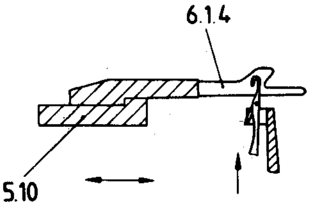
Reference	Term	Definition/illustration
1	Flat warp knitting machine	Machine (e.g. tricot machine) in which the needles are in straight lines and in which stitches are formed simultaneously by a large number of threads (warp) running in the longitudinal direction. The classification of knitting machines is given in ISO 7839 : 1984, *Textile machinery and accessories — Knitting machines — Classification and vocabulary*.
2	Sides and dimensions	
2.1	Front side (V)	 Rear side (H) Pattern drive Left side (L) b (R) Right side l (V) Front side **Figure 1**
2.2	Rear side (H)	
2.3	Right side (R)	
2.4	Left side (L)	
2.5	Machine length, *l*	Overall length of the machine.
2.6	Machine width, *b*	Overall width of the machine.
2.7	Nominal width; maximum working width	Distance, in millimetres, between the centres of the needles at the outer ends of the needle bar. The nominal width designates the size of the flat warp knitting machine.
2.8	Working width; threading-in width	Distance, in millimetres, between the centres of the two end needles supplied with warp threads.
2.9	Pitch	The distance, in millimetres, between the centres of two adjacent needles in the same needle carrier (see ISO 8188).
2.10	Gauge	Number of needles on a needle bar per unit length. NOTE — In future the use of the term "gauge" should be avoided. The needle pitch should be used for the comparison of knitting machines.

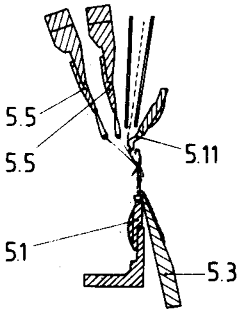
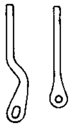
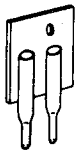
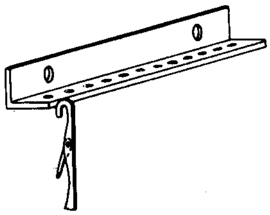
Reference	Term	Definition/illustration
3	Machine frame	Supporting frame of the machine. It may consist of supporting legs connected by cross-members (see figure 2) or of a machine bed to which legs and feet are added (see figure 3).  **Figure 2**  **Figure 3**
4	Driving mechanisms for knitting elements	Motion-converting (see 4.1), transmission (see 4.2) and guiding (see 4.3) parts which produce the motion for the knitting elements and transmit this motion to the carriers of the knitting elements.
4.1	Motion converter	Disc cams, cranks and eccentrics with couplers which convert circular motion into linear motion.
4.1.1	Disc cams	Disc, clamped to a shaft, having one or more irregular peripheries against which one or more rollers act.
4.1.1.1	Single cam	Disc cam with a single contact surface (non-positive). (See figure 4.)  **Figure 4**
4.1.1.2	Conjugate cams	Two disc cams cut in opposition to each other (positive). (See figure 5.)  **Figure 5**
4.1.1.3	Slotted cam	Disc cam, with two contact surfaces, which are located in an annular slot (positive). (See figure 6.)  **Figure 6**

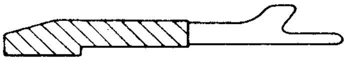
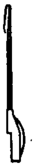
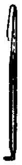
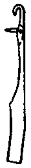
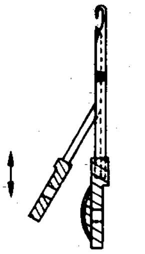
Reference	Term	Definition/illustration
4.1.1.4	Ridge cam	Disc cam with two contact surfaces which are formed by an annular ridge. (See figure 7.)  **Figure 7**
4.1.2	Coupled eccentric cams	Crank shaft or a pair of concentric discs which produce(s) a sinusoidal motion. This motion may be modified by coupled cams into a combined motion (coupled wane). (See figures 8 and 9.)  **Figure 8**  **Figure 9**
4.2	Transmission	Parts which transmit motion to other parts.
4.2.1	Push rod	Adjustable rod for transmitting motion in an axial direction. (See figures 10 and 11.)  **Figure 10**  **Figure 11**
4.2.2	Transmission lever	Single- or double-armed lever for transmitting motion. (See figures 12 and 13.)  **Bild 12**  **Bild 13**
4.2.3	Coupler	Connecting parts for transmitting motion. (See figures 14 and 15.)  **Figure 14**  **Figure 15**

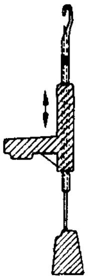
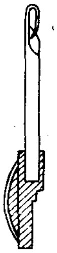
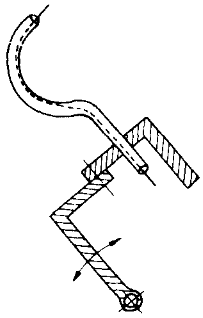
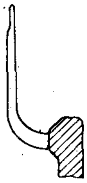
Reference	Term	Definition/illustration
4.3	Guiding parts	Parts which guide the carriers (bars) of the knitting elements in a straight (see 4.3.1), curved (see 4.3.2 and 4.3.3) or looped (see 4.3.4 and 4.3.5) path and which convert the motion of the transmission into a knitting motion.
4.3.1	Pistons (for straight guiding)	Pistons or similar parts which slide in guiding surfaces. (See figures 16 et 17.)  Figure 16  Figure 17
4.3.2	Support levers (for curved guiding)	Levers, pivoted on a shaft, which support a bar. They may be free or clamped to the shaft. (See figure 18.)  Figure 18
4.3.3	Controlled supporting levers (for curved guiding)	Support levers controlling the motion of the transmission. (See figure 19 and 20.)  Figure 19  Figure 20
4.3.4	Jointed links (for looped guiding)	Movable parts of a linked lever system which guide a bar and control the motion of the transmission. (See figure 21.)  Figure 21

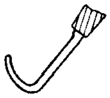
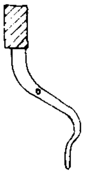
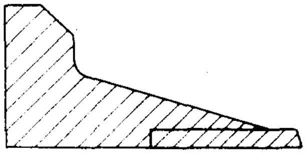
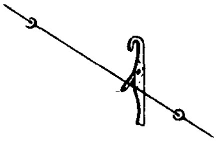
Reference	Term	Definition/illustration
4.3.5	Oscillating pistons (for looped guiding)	Pistons or similar parts which are guided in controlled tracks. They guide a bar and are driven by the transmission. (See figure 22.)  **Figure 22**
5	Supports for knitting elements; bars	Straight or angled flat bars which hold the knitting elements and their supports and holders.
5.1	Needle bar	Bar which holds the needles or needle parts and their supports and holders. (See figure 23.)  **Figure 23**
5.2	Sinker bar	One or two bars which hold sinkers, their supports and holders, required for holding down or knocking over, or both. (See figure 23.)
5.3	Knock-over bar	(1) Bar, with its supports and holders, which has a knock-over edge with or without verges. (2) Bar of knock-over comb sinkers and their supports, with a plate, strip, wire etc. which forms the knock-over edge. (See figures 24, 25, 26 and 29.)  **Figure 24**

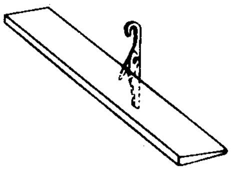
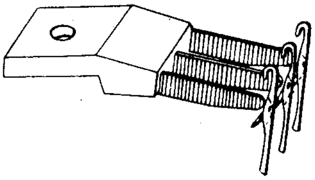
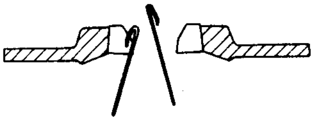
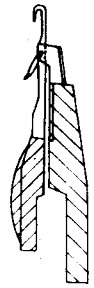
Reference	Term	Definition/illustration
5.4	Stitch comb bar	Bar, with stitch comb sinkers, their supports and holders, which performs the function of holding down. (See figure 24.)
5.5	Guide bar	Bar with yarn guides, their supports and holders. (See figures 23, 24, 25, 26 and 29.)  **Figure 25**
5.6	Presser bar	Bar with a plain or cut presser plate or with inserted presser teeth and their holders. (See figures 23 and 25.)
5.7	Tongue bar	Bar with tongue parts, their supports and holders.
5.8	Locking bar; holding down bar	Bar, located behind the needle, which performs the function of holding down. (See figure 26.)  **Figure 26**
5.9	Latch guard bar	Bar, with a plate or points and their supports and holders, on the latch side of the needles which prevents the latches flicking up to the closed position before the needles have been lapped. (See figure 27.)  **Figure 27**
5.10	Weft-insertion bar	Bar, with weft inserters and their supports and holders, which places a laid length of yarn between the needle back and the yarn sheet (warp). (See figure 28.)  **Figure 28**

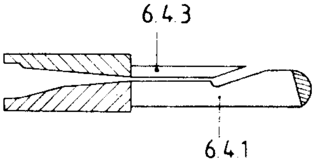
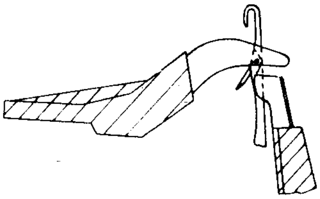
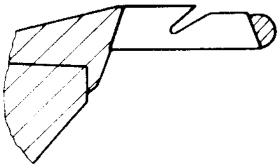
Reference	Term	Definition/illustration
5.11	Fabric guide	Small plates, or similar elements, with a slot for guiding and lapping of the fabric. (See figure 29.)  **Figure 29**
6	Knitting elements	Yarn guides for guiding and looping the ends; needles etc. for forming the loops; sinkers for forming and holding the loops.
6.1	Yarn and fabric guides	Knitting elements which guide the yarn ends during lapping.
6.1.1	Guide	Yarn guide, one end of which is flat and has a hole. (See figure 30.)  **Figure 30**
6.1.2	Guide tube	Tubular yarn guide. (See figure 31.)  **Figure 31**
6.1.3	Guide hole bar	Punched bar made from one or several pieces. (See figure 32.)  **Figure 32**

Reference	Term	Definition/illustration
6.1.4	Weft inserters	Elements which place a laid length of yarn between the needle back and the yarn sheet (warp). (See figures 28 and 33.)  Figure 33
6.2	Needles	(1) Elements with a hook-shaped part which hold the loops and which are open for receiving the ends and closed for landing the loops. (See ISO 8119-1, ISO 8119-2 and ISO 8119-3.) (2) Elements for holding kinks of yarn not to be converted into loops.
6.2.1	Bearded needle	Needle, with a spring beard (which is bent like a hook) and a groove in a flat or round shaft (see figure 34). For landing, the beard is pressed into the groove, thereby closing the needle (see figure 35).  Figure 34  Figure 35
6.2.2	Latch needle	Needle with a hook-shaped end, a movable latch and a shaft.
6.2.2.1	Latch needle with freely movable latch	Needle with a hook-shaped end, a freely movable latch and a shaft. The latch is opened and closed by the stitch itself. (See figure 36.)  Figure 36
6.2.2.2	Latch needle with self-opening latch	Needle with a hook-shaped end, a shaft and a self-opening latch. The latch is closed by the loop.
6.2.3	Compound needle	Needle with a hook-shaped end and an independently movable tongue.
6.2.3.1	Compound needle with open stem	Needle with a hook-shaped end and a shaft. The shaft has a slot containing a movable tongue which closes the needle for landing and knocking over and opens the needle for lapping. (See figure 37.)  Figure 37

Reference	Term	Definition/illustration
6.2.3.2	Compound needle with tubular stem	Needle with a hook-shaped end and a tubular shaft. The tubular shaft contains a tongue which closes the needle for landing and knocking over and opens the needle for lapping. (See figure 38.)  **Figure 38**
6.2.4	Carbine needle	Needle with a beard bent into a hook and a laterally open groove. The beard is only open for the yarn in one lapping direction and for the loop during locking, and is closed for the loop during landing. (See figure 39.)  **Figure 39**
6.2.5	Tubular needle	Bent tube, which guides the yarn and forms it into a loop by means of an opposing tubular needle, for producing "links-links" warp knitted fabrics. (See figure 40.)  **Figure 40**
6.2.6	Plush needle; point	Needle or similar component with profile suitable for holding, guiding and forming a plush loop.
6.2.6.1	Plush needle pin	Pin for holding the plush loops in the ground structure during the formation of stitches, in-lays or tucks. (See figure 41.)  **Figure 41**

Reference	Term	Definition/illustration
6.2.6.2	Plush needle hook	Hook for holding the plush loops in the ground structure during the formation of stitches, in-lays or tucks. (See figure 42.)  **Figure 42**
6.2.6.3	Plush needle finger	Finger for holding the plush loops in the ground structure during the formation of stitches, in-lays or tucks. (See figure 43.)  **Figure 43**
6.3	Needle-dependent knitting elements	Elements which aid the needles during the knitting process.
6.3.1	Needle-closing elements	Elements for closing the needle end and which are driven by the motion converters.
6.3.1.1	Presser blade	Bar or blade with presser edge which presses the needle beards into the grooves and thereby closes the needles. (See figure 44.)  **Figure 44**
6.3.1.2	Tongue	Element, guided in the needle shaft, which opens the needle end for locking the loops and closes it for landing them.
6.3.2	Latch guard	Element which prevents the flicking up of a latch during the raising of the needle until the ends are safely lapped into the needle hook.
6.3.2.1	Latch guard wire	Stationary or movable wire, held at its ends or at several points along its length, on the latch side of the needles. (See figure 45.)  **Figure 45**

Reference	Term	Definition/illustration
6.3.2.2	Latch guard blade	Stationary or movable blade on the latch side of the needles. (See figure 46.)  **Figure 46**
6.3.2.3	Latch guard points	Stationary or movable points arranged on a holder on the latch side of the needles. (See figure 47.)  **Figure 47**
6.3.2.4	Latch-opening spring	Latch needle with a built-in spring which prevents accidental raising of the latch.
6.4	Sinkers	Plain plates or similar elements with suitable profiles for holding and forming loops.
6.4.1	Knock-over sinkers	Plain plates with straight or profiled knock-over edges for holding and forming loops (landing and knock-over). (See figures 48 and 50.)  **Figure 48**
6.4.2	Knock-over comb sinkers	Plain plates with straight knock-over edges for holding and forming loops, mounted at right angles to, and used in connection with, a knock-over edge (landing and knock-over). (See figure 49.)  **Figure 49**

Reference	Term	Definition/illustration
6.4.3	Holding down sinkers; stitch comb sinkers	Plain plates with profiles suitable for holding and guiding threads and loops (during holding down when the needles rise). (See figures 50 and 51.)  Figure 50  Figure 51
6.4.4	Compound sinkers	Plain plates with profiles suitable for holding, guiding and forming the threads and loops (holding down, landing and knock-over). (See figure 52.)  Figure 52

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